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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/373,014	08/11/1999	PING-SHENG TSENG	16503-0021	2128

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EXAMINER
THANGAVELU, KANDASAMY

ART UNIT	PAPER NUMBER
2123	8

DATE MAILED: 04/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/373,014	TSENG ET AL.	
	Examiner	Art Unit	
	Kandasamy Thangavelu	2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 February 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11 August 1999* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Introduction

1. This communication is in response to the Applicant's Response mailed on February 27, 2003. Claims 1-3, 8, 18 and 19 were amended. Claims 21 and 22 were added. Claims 1-22 of the application are pending.

Response to Arguments

2. Applicant's arguments filed on February 27, 2003 have been fully considered.

Claim rejections under 35 U.S.C. 102 (e) and 103 (a) are withdrawn in response to arguments.

Applicants' arguments, filed on February 27, 2003 under 35 U.S.C. 112 second paragraph are not persuasive. Applicant's arguments regarding 35 U.S.C. 112 second paragraph rejections are moot in view of the new rejections under 35 U.S.C. 112 first and second paragraphs which are applied against the amended claims. Therefore, this office action is made final.

Drawings

3. The draft person has objected to the drawings; see a copy of Form PTO-948 sent with paper No. 5 for an explanation.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. §112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1-22 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. This is because the terms ***simulation history, input history file and Value change dump file*** are described inconsistently in the specification and in the claims to make it impossible to one of ordinary skill in the art to make and use the invention.

5.1 Simulation history

1. Claim 1 states in-part:

A method of ***creating a simulation history*** for a selected simulation session range for a hardware modeled design on demand, comprising steps:

...

generating a Value change dump (VCD) file by dumping state information from the hardware modeled design for the selected simulation target range.[emphasis added]

This implies that "simulation history" is "value change dump" containing state information.

2. Claim 5 states in-part:

....

the step of recording further comprises steps:

...

recording ***the compressed primary inputs as the simulation history***.[emphasis added]

This implies that "simulation history" consists of "compressed primary inputs".

3. Claim 7 states in-part:

...

the recording step includes the step of recording the ***primary inputs*** as the ***simulation history***.[emphasis added]

This implies that "simulation history" consists of "primary inputs".

4. Specification Page 59, Lines 21-22 state in-part:

the RCC system saves the ***hardware state information*** from this end in a ***simulation history file***.[emphasis added]

5. Specification Page 63, Lines 25-26 state in-part:

initially, full states of the design such as ***software model states and hardware model register and node values*** are saved into a file called simulation history file. [emphasis added]

6. Specification page 65, Lines 18-20 state in-part:

the ***evaluation results*** or primary outputs (e.g. register values) from the designer's hardware model .. are saved in the ***simulation history file***. [emphasis added]

5.2 Input history file

Specification Page 59, Lines 19-20 sate in-part:

a highly compressed form of the primary inputs is recorded in an ***input history file***.[emphasis added]

This description of saving the "compressed primary inputs" into "input history file" differs from the Claims 5, 6, 14 and 15, where compressed input data is saved as "simulation history" in simulation history file.

5.3 Value change dump file

1. Claim 1 implies that "value change dump" contains "state information".

2. Specification Page 59, Lines 8-9 state in-part:

dump the ***hardware state information*** from any simulation time range into a ***VCD file*** for later analysis.[emphasis added]

This implies that the VCD file contains "hardware state information" from any simulation time range.

3. Claim 4 states in-part:

...

step of generating the VCD file further comprises:

generating evaluated results from the modeled design based on the processed simulation history; and

saving the evaluated results during the simulation target range into the VCD file.[emphasis added]

This implies that "evaluated results" are saved in the VCD file. So the VCD file contains "state information" and "evaluated results from the evaluation of state information".

4. Claim 20 states in-part:

...

dump logic for dumping ***evaluated information*** to the VCD file, the ***evaluated information*** generated by the ***evaluation of the decompressed primary inputs*** by the modeled design.[emphasis added]

This implies that the "evaluated information" is obtained from the evaluation of "decompressed primary inputs". So the VCD file contains state information and the evaluated information from the decompressed primary inputs.

5. Specification Page 57, Lines 22-26 state in-part:

that VCD provides a ***historical record of all inputs*** and ***selected register outputs*** of the hardware model.[emphasis added]

5.4 Compute value change dump

Specification Page 58, Line 21-22 state, "running the software simulation with input logs to the hardware model to ***compute value change dump*** of all hardware components.[emphasis added]

The specification does not describe how the value change dump is calculated for all hardware components using the software simulation. Why does the Value change dump include all hardware components here but only the selected register outputs as described in paragraph 5.4 above?

5.5 Specification Page 66, Lines 11-14 state in-part:

the input history file, ***the simulation history file*** and the ***VCD file*** may be different.[emphasis added]

However, it is not understood as to what is in the simulation history file and how it is different from the VCD file due to numerous variations of the definition of the simulation history file and the VCD file.

5.6 Specification Page 66, Lines 14-15 state in-part:

the ***input history file*** and the ***simulation history file*** may be incorporated in one file that is separate from VCD file.[emphasis added]

However, it is not understood as to what is in the simulation history file and how it is different from the VCD file due to numerous variations of the definition of the simulation history file and the VCD file.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 5 and 7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 5 recites the limitation " The method of claim 4, wherein the step of recording further comprises " in Line 1 of the claim. There is insufficient antecedent basis for the limitation "the step of recording" in the claim.

Claim 7 recites the limitation " The method of claim 4, wherein the recording step includes " in Line 1 of the claim. There is insufficient antecedent basis for the limitation "the recording step" in the claim.

8. Claims 1-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The scope of simulation history file and the Value change dump file are indefinite due to numerous and conflicting definitions of these two files.

9. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative elements, such omission amounting to a gap between

the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are:

running fast simulation from simulation time t_0 to simulation time t_1 (Specification Page 69, Lines 6-18);

providing primary inputs to the hardware modeled design for evaluation;

evaluating in the modeled design the processed simulation history; and

generating evaluated results from the modeled design based on the processed simulation history.

9. Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are:

fast simulation logic for running fast simulation from simulation time t_0 to simulation time t_1 (Specification Page 69, Lines 6-18);

test bench process for providing primary inputs to the hardware-modeled design for evaluation;

evaluation logic in the reconfigurable hardware logic for evaluating in the hardware-modeled design the processed simulation history; and

generation logic for generating the evaluated results from the hardware-modeled design based on the processed simulation history.

10. Claim 18 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are:

fast simulation logic for running fast simulation from simulation time t_0 to simulation time t_1 (Specification Page 69, Lines 6-18);

test bench process for providing primary inputs to the hardware-modeled design for evaluation; and

evaluation logic in the reconfigurable hardware logic for evaluating in the hardware-modeled design the processed simulation history; and

Conclusion

ACTION IS FINAL, NECESSIATED BY AMENDMENT

11. Applicants' amendments necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Kandasamy Thangavelu whose telephone number is 703-305-0043. The examiner can normally be reached on Monday through Friday from 8:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kevin Teska, can be reached on (703) 305-9704. The fax phone number for the organization where this application or proceeding is assigned is 703-746-7329.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-9600.

K. Thangavelu
Art Unit 2123
March 25, 2003

SAMUEL BRODA, ESQ.
PRIMARY EXAMINER